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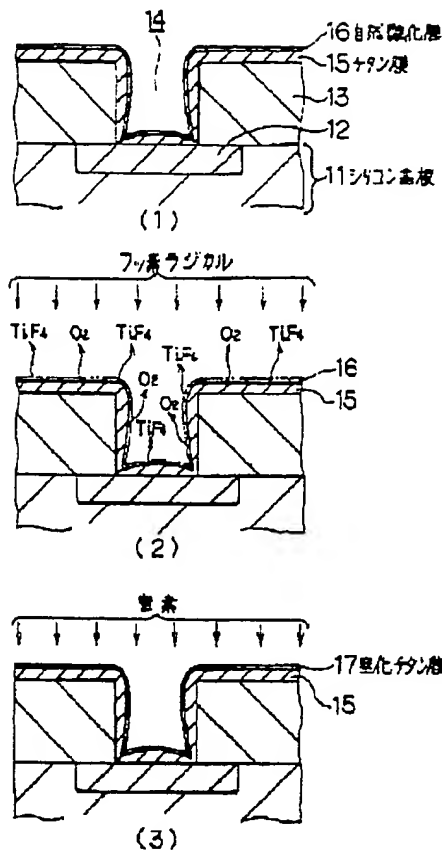
APPLICATION NUMBER : 04269683

APPLICANT : SONY CORP.

INVENTOR : MIYAMOTO TAKAAKI:

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TITLE : FORMATION OF BARRIER METAL



ABSTRACT : PURPOSE: To form a barrier metal of titanium nitride film excellent in barrier properties and producing no leak current by performing nitriding and silicification while removing influence of spontaneous oxide film.

CONSTITUTION: Spontaneous oxide film 16 is removed from the surface of high melting point metal film (e.g. a titanium film 15) through plasma irradiation of mixture gas of hydrogen gas or halogen gas, e.g. nitrogen trifluoride or chlorine, and a gas containing nitrogen while at the same time surface of the titanium film 15 is nitrified. Alternatively, surface of the high melting point metal film is nitrified through plasma irradiation of nitrogen or ammonia after removing spontaneous oxide film from the surface of the high melting point metal film through plasma irradiation of hydrogen or halogen gas. Subsequently, annealing is performed to nitride the high melting point metal film and to case a silicon substrate, contacting with the high melting point metal film, to react on the high melting point metal film thus forming a silicide film.

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